

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. – 5. (Canceled)

- 6. (Previously presented)** An apparatus for molding a replica comprising:
- a mother mold having a mold cavity corresponding to the outer contour of an article to be duplicated, said mother mold being formed from a transparent cured product of a photo-curable liquid silicone rubber composition,
 - a means for casting or filling the mold cavity with a photo-curable liquid resin, and
 - a means for irradiating light to the photo-curable liquid resin from outside the mother mold thereby curing the photo-curable resin;
- wherein the transparent cured product of the mother mold is cured from a photo-curable liquid silicone rubber composition comprising (i) 100 parts by weight of an organopolysiloxane and (ii) 0.01 to 5 parts by weight of a photo-initiator,
- the organopolysiloxane (i) comprising:
- (A) 30 to 90% by weight of an organopolysiloxane of the following average compositional formula (1):



wherein R, which is identical or different, is a substituted or unsubstituted monovalent hydrocarbon group free of an aliphatic unsaturated bond or an alkoxy group; R^l, which is identical or different, is a photo-reactive group selected from a (meth)acryloyl-containing

group, vinyloxyalkyl group, and epoxy-containing group; and letters a and b are positive numbers satisfying $1.90 \leq a < 2.40$, $0.0003 \leq b \leq 0.10$, and $1.90 < a + b \leq 2.40$, the organopolysiloxane containing at least two photo-reactive groups in a molecule and having a viscosity of 100 to 1,000,000 centipoise at 25°C, and

(B) 10 to 70% by weight of a silicone resin comprising $R_p R^1_q \text{SiO}_{1/2}$ units (M), SiO_2 units (Q), and/or $\text{XSiO}_{3/2}$ units (T) wherein R and R^1 are as defined above, letters p and q each are equal to 0, 1, 2 or 3 and satisfy $p + q = 3$, X is selected from R and R^1 , the molar ratio $M/(Q + T) = 0.6$ to 1.2, and the molar ratio $R^1/\text{Si} = 0.01$ to 0.10, the silicone resin (B) being soluble in component (A).

7. (Canceled)

8. (Original) The apparatus of claim 6 wherein said casting means includes a means for agitating and defoaming said photo-curable liquid resin under a reduced pressure.

9. (Original) The apparatus of claim 6 wherein said light irradiating means irradiates light having a wavelength in the range of 200 to 500 nm.

10. (Previously presented) The apparatus of claim 6, wherein the transparent cured product forming the mother mold has a Shore A hardness of 20 to 60 and a transmittance of incident actinic radiation of at least 10%T at a wall gage of 10 mm.

11. (Previously presented) The apparatus of claim 10, wherein the transparent cured product forming the mother mold has a Shore A hardness of 30 to 50.

12. (Previously presented) The apparatus of claim 6, further comprising the mold cavity being at least partly filled with a radical polymerization type liquid resin composition comprising: (1) a low molecular weight compound having at least one ethylenically unsaturated bond, an oligomer thereof or a mixture thereof and (2) a photo-initiator capable of absorbing actinic radiation to initiate polymerization thereof.

13. (Canceled)

14. (Previously presented) An apparatus for molding a replica comprising:
a mother mold having a mold cavity corresponding to the outer contour of an article to be duplicated, said mother mold being formed from a transparent cured product of a photo-curable liquid silicone rubber composition,

a means for casting or filling the mold cavity with a photo-curable liquid resin, and

a means for irradiating light to the photo-curable liquid resin from outside the mother mold thereby curing the photo-curable resin;

wherein the transparent cured product of the mother mold is cured from a photo-curable liquid silicone rubber composition comprising (iii) an organopolysiloxane and (iv) a photo-initiator, the organopolysiloxane (iii) comprising:

(C) 30 to 90% by weight of an organopolysiloxane of the following average compositional formula (2):



wherein R, which is identical or different, is a substituted or unsubstituted monovalent hydrocarbon group free of an aliphatic unsaturated bond or an alkoxy group; R², which is identical or different, is an aliphatic unsaturated group selected from an alkenyl group and an

oxygen atom-containing aliphatic unsaturated group; and letters c and d are positive numbers satisfying $1.90 \leq c < 2.40$, $0.0003 \leq d \leq 0.10$, and $1.90 < c + d \leq 2.40$, the organopolysiloxane containing at least two aliphatic unsaturated groups in a molecule and having a viscosity of 100 to 1,000,000 centipoise at 25°C;

(D) 10 to 70% by weight of a silicone resin comprising $R_pR_q^2SiO_{1/2}$ units (M), SiO_2 units (Q), and/or $YSiO_{3/2}$ units (T) wherein R and R^2 are as defined above, letters p and q each are equal to 0, 1, 2 or 3 and satisfy $p + q = 3$, and Y is selected from R and R^2 , the molar ratio $M/(Q + T) = 0.6$ to 1.2, and the molar ratio $R^2/Si = 0.01$ to 0.10, the silicone resin (D) being soluble in component (C); and

(E) an organosilane or organosiloxane containing at least two mercapto groups in a molecule in such an amount that the equivalent of mercapto groups is 0.1 to 20 relative to the aliphatic unsaturated groups supplied from components (C) and (D).

15. (Previously presented) An apparatus for molding a replica comprising:

a mother mold having a mold cavity corresponding to the outer contour of an article to be duplicated, said mother mold being formed from a transparent cured product of a photo-curable liquid silicone rubber composition,

a means for casting or filling the mold cavity with a photo-curable liquid resin, and

a means for irradiating light to the photo-curable liquid resin from outside the mother mold thereby curing the photo-curable resin;

wherein the transparent cured product of the mother mold is cured from a photo-curable liquid silicone rubber composition comprising:

(C) 30 to 90% by weight of an organopolysiloxane of the following average compositional formula (2):



wherein R, which is identical or different, is a substituted or unsubstituted monovalent hydrocarbon group free of an aliphatic unsaturated bond or an alkoxy group; R^2 , which is identical or different, is an aliphatic unsaturated group selected from an alkenyl group and an oxygen atom-containing aliphatic unsaturated group; and letters c and d are positive numbers satisfying $1.90 \leq c < 2.40$, $0.0003 \leq d \leq 0.10$, and $1.90 < c + d \leq 2.40$, the organopolysiloxane containing at least two aliphatic unsaturated groups in a molecule and having a viscosity of 100 to 1,000,000 centipoise at 25°C;

(D) 10 to 70% by weight of a silicone resin comprising $R_p R^2_q SiO_{1/2}$ units (M), SiO_2 units (Q), and/or $YSiO_{3/2}$ units (T) wherein R and R^2 are as defined above, letters p and q each are equal to 0, 1, 2 or 3 and satisfy $p + q = 3$, and Y is selected from R and R^2 , the molar ratio $M/(Q + T) = 0.6$ to 1.2, and the molar ratio $R^2/Si = 0.01$ to 0.10, the silicone resin (D) being soluble in component (C);

(F) an organohydrogenpolysiloxane of the following average compositional formula (3):



wherein R, which is identical or different, is a substituted or unsubstituted monovalent hydrocarbon group free of an aliphatic unsaturated bond or an alkoxy group, letters e and f are positive numbers satisfying $0.70 \leq e \leq 2.69$, $0.01 \leq f \leq 1.20$, and $1.5 \leq e + f \leq 2.7$, the organohydrogenpolysiloxane containing at least two SiH groups in a molecule, in such an amount that 0.4 to 10 SiH groups are available per aliphatic unsaturated group supplied from components (C) and (D); and

(G) a catalytic amount of a platinum catalyst for effecting hydrosilylation between the aliphatic unsaturated groups in components (C) and (D) and the SiH group in component (F) upon light exposure.

16. (Previously presented) The apparatus of claim 6, wherein the mother mold consists of the transparent cured product of a photo-curable liquid silicone rubber composition.

17. (Previously presented) The apparatus of claim 6, wherein the mother mold is separable into two or more sections to allow removal of the article to be duplicated.

18. (Previously presented) The apparatus of claim 6, wherein the means for irradiating light is one or more UV fluorescent lamps.

19. (Previously presented) The apparatus of claim 6, wherein the mother mold is provided with a runner for filling the mold cavity with a photo-curable liquid resin.

20. (Previously presented) The apparatus of claim 14, wherein said casting means includes a means for agitating and defoaming said photo-curable liquid resin under a reduced pressure.

21. (Previously presented) The apparatus of claim 14, wherein said light irradiating means irradiates light having a wavelength in the range of 200 to 500 nm.

22. (Previously presented) The apparatus of claim 14, wherein the transparent cured product forming the mother mold has a Shore A hardness of 20 to 60 and a transmittance of incident actinic radiation of at least 10%T at a wall gage of 10 mm.

23. (Previously presented) The apparatus of claim 22, wherein the transparent cured product forming the mother mold has a Shore A hardness of 30 to 50.

24. (Previously presented) The apparatus of claim 14, further comprising the mold cavity being at least partly filled with a radical polymerization type liquid resin composition comprising: (1) a low molecular weight compound having at least one ethylenically unsaturated bond, an oligomer thereof or a mixture thereof and (2) a photo-initiator capable of absorbing actinic radiation to initiate polymerization thereof.

25. (Previously presented) The apparatus of claim 15, wherein said casting means includes a means for agitating and defoaming said photo-curable liquid resin under a reduced pressure.

26. (Previously presented) The apparatus of claim 15, wherein said light irradiating means irradiates light having a wavelength in the range of 200 to 500 nm.

27. (Previously presented) The apparatus of claim 15, wherein the transparent cured product forming the mother mold has a Shore A hardness of 20 to 60 and a transmittance of incident actinic radiation of at least 10%T at a wall gage of 10 mm.

28. (Previously presented) The apparatus of claim 27, wherein the transparent cured product forming the mother mold has a Shore A hardness of 30 to 50.

29. (Previously presented) The apparatus of claim 15, further comprising the mold cavity being at least partly filled with a radical polymerization type liquid resin composition comprising: (1) a low molecular weight compound having at least one ethylenically unsaturated bond, an oligomer thereof or a mixture thereof and (2) a photo-initiator capable of absorbing actinic radiation to initiate polymerization thereof.

30. – 32. (Canceled)